

CPP 程式設計題

命題者：TCC

題目名稱(中文/英文)：templateBS

主要測試觀念： templates

Basics

- ☐ C++ BASICS 1
- ☐ FLOW OF CONTROL
- ☐ FUNCTION BASICS
- ☐ PARAMETERS AND OVERLOADING
- ☐ ARRAYS
- ☐ STRUCTURES AND CLASSES
- ☐ CONSTRUCTORS AND OTHER TOOLS
- ☐ OPERATOR OVERLOADING, FRIENDS, AND REFERENCES
- ☐ STRINGS
- ☐ POINTERS AND DYNAMIC ARRAYS

Functions

- ☐ SEPARATE COMPILATION AND NAMESPACES
- ☐ STREAMS AND FILE I/O
- ☐ RECURSION
- ☐ INHERITANCE
- ☐ POLYMORPHISM AND VIRTUAL FUNCTIONS
- ☒ TEMPLATES
- ☐ LINKED DATA STRUCTURES
- ☐ EXCEPTION HANDLING
- ☐ STANDARD TEMPLATE LIBRARY
- ☐ PATTERNS AND UML

題目說明：Write a template version of the iterative binary search from Display 13.6.

輸入說明：請參考其他範例的 main。測試時會有其他的 main 覆蓋您的 main。Main 只是參考，function 請支援 string 與 double type

I/O 範例：

	Sample Input	Sample Output
第一組測資與輸出	3	Testing Template Iterative Binary Search 3 is in index location 1 Testing Template Recursive Binary Search 3 is in index location 1

附屬資料：

- ☒ 解答程式：templateBS.cpp
- ☒ 測試資料：input-main1.cpp, output1.txt, input1.txt

■ 易，僅需用到基礎程式設計語法與結構

☐ 中，需用到多項程式設計語法與結構

☐ 難，需用到多項程式結構或較為複雜之資料型態或結構

解題時間：30 分鐘。

其他註記：

```
int main()
{
    int a[ARRAY_SIZE];
    const int finalIndex = ARRAY_SIZE - 1;

    int i;
```

```

for (i = 0; i < ARRAY_SIZE; i++)
    a[i] = 3 * i;
cout << "Array contains:\n";
for (i = 0; i < ARRAY_SIZE; i++)
    cout << a[i] << " ";
cout << endl;

int key, location;
bool found;
cout << "Enter number to be located: ";
cin >> key;

cout << "\nTesting Template Iterative Binary Search\n";
IterSearch(a, 0, finalIndex, key, found, location);

if (found)
    cout << key << " is in index location "
        << location << endl;
else
    cout << key << " is not in the array." << endl;

cout << "\nTesting Template Recursive Binary Search\n";
recBinSrch(a, 0, finalIndex, key, found, location);
if (found)
    cout << key << " is in index location "
        << location << endl;
else
    cout << key << " is not in the array." << endl;

return 0;
}

```